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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Walter F. Rausch

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EXAMINER

NGUYEN, DUC M

ART UNIT

PAPER NUMBER

2618

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

12/19/2006

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/718,312

Applicant(s)

SUGIURA ET AL.

Examiner

Duc M. Nguyen

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-17, 19, 21-23, 29-34, 45-48, 50, 55 and 56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-17, 19, 21-23, 29-34, 45-48, 50, 55 and 56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10/12/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is in response to applicant's response filed on 10/10/06. Claims 14-17, 19, 21-23, 29-34, 45-48, 50, 55-56 are now pending in the present application. **This action is made final.**

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims **14-17, 19, 21-23, 26, 29, 31, 45-48, 50, 56** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Csapo et al (US 6,411,825)** in view of **Dwyer (US 5,970,400)**, **Stilp (US 6,266,013)** and **Bickley et al (US 5,982,322)**.

Regarding claim **14**, **Csapo** discloses a wireless communication system comprising an antenna located at a communication tower (see **Fig. 9** and **col. 6, lines 28-42**), comprising:

- a communication tower having an upper portion and a lower portion (see Fig. 9);
- an antenna (see Fig. 9, ref. 120);
- a frequency converter (implicitly disclose in col. 4, lines 43-50), wherein in order to convert a high frequency signal to a low frequency signal and vice versa, a frequency converter (sometime called mixer) is needed. Since "the

- block converter" is just a mixer or frequency converter (see specification, line 23 of page 11), the frequency converter would read on the "block converter"
- a fiber optic transmitter (see col. 6, lines 55-59), wherein it is clear that in order to provide an optical signal that will be less lossy than an electric signal, an optical/electrical conversion and an optic transmitter-receiver should be utilized. Therefore, Csapo would obviously disclose a fiber optic transmitter when using the fiber cable for transmission;
 - a fiber optic receiver (see col. 6, lines 55-59), wherein it is clear that in order to provide an optical signal that will be less lossy than an electric signal, an optic/electrical conversion and an optic transmitter-receiver should be utilized. Therefore, Csapo would obviously disclose a fiber optic receiver when using the fiber-optic cable for transmission;
 - a converting system configured to convert a communication signal to a lower frequency signal, and to convert the lower frequency signal to an optical signal, and to transmit the optical signal to an optical receiving system (see col. 4, lines 43-50 and col. 6, lines 55-59). Since **Csapo** discloses a frequency converter, a fiber optic transmitter and a fiber optic receiver as explained above in the preceding paragraphs, it is clear that Csapo would obviously disclose such converting system when using a fiber-optic cable for transmission;
 - a stable timing source located at a base of a tower (see Fig. 13, ref. 140 regarding GPS receiver, Time & Frequency Generator and col. 7, lines 22-

26), wherein it is clear that the GPS timing signal is a "stable" timing signal (see specification, page 8, line 6);

- a GPS receiver (see Fig. 13, ref. 140);
- amplifiers (PA and LNA), a filter (see col. 7, lines 30-45);
- a frequency synthesizer (see Fig. 13 and col. 7, lines 40-45), which would implicitly generate a stabilized local oscillator signal (see **Bickey**, col. 8, lines 1-20) for the frequency converter as mentioned above, in order to convert a high frequency signal to a low frequency signal and vice versa (see **Csapo**, col. 4, lines 43-50) for the transceiver modules in the MU and PRU;
- a transmission medium and an "inserter" configured to carry power and stable timing signal as claimed (see **col. 9, lines 30-45** regarding a single polymer jacket and a single multi-wire/coaxial connector which would read on the claimed "inserter")

However, **Csapo** is silence in that the GPS "stable" timing signal is used as a stable timing signal for the frequency synthesizer to generate a "stable" oscillator signal. However, it is noted that using the GPS "stable" timing signal as a stable timing signal for the frequency synthesizer to generate a "stable" oscillator signal is well known in art as disclosed by **Dwyer** (see col. 11, lines 29-45). Further, since **Csapo** discloses that the GPS provides "accurate clock" and "frequency signals" to the main unit (MU) and the remote unit (PRU) (see **Csapo**, col. 7, lines 22-27), and further disclose a 10 MHz reference signal carried by the cable connecting the MU and the PRU (see **Csapo**, col. 9, lines 22-33), it is clear that the 10 MHz reference signal would be the GPS timing

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reference signal that would be used by the frequency synthesizer for phase locking the oscillator to the GPS timing reference signal in the similar way as disclosed by **Stilp** (see Fig. 2, GPS 10-6 and col. 10, lines 3-12 and col. 11, lines 23-28 regarding the 10 Mhz reference signal).

Therefore, in view of **Bickley, Dwyer** and **Stilp** regarding the characteristics of a frequency synthesizer and a timing reference (clock signal), and based on **Csapo** disclosure regarding the GPS that provides "accurate clock" and "frequency signals" to the main unit (MU) and the remote unit (PRU), and the 10 MHZ reference signal carried by the cable connecting the PMU and the PRU as mentioned above, one skilled in the art would recognize that **Csapo** would obviously, if not **implicitly**, teach the GPS "timing signal" would be used as a system timing reference ("accurate clock") to calibrate (or synchronize or phase lock) the oscillator signal of the frequency synthesizers of the MU and PRU for transceiver modules, in order to provide "frequency signals" (oscillator signals) for the frequency converters (or mixers) of the MU and PRU. Since the GPS receiver of the PMU is located at a base of a tower, it is clear that **Csapo** would disclose the GPS signal or stable timing signal is transmitted at a base (lower portion) of a tower as claimed (see **Csapo**, Fig. 9 and col. 8, lines 56-59), and would be inserted on a transmission medium (see col. 9, lines 43-45) to provide the timing signal to the oscillator of the frequency synthesizer (see **Csapo**, col. 9, lines 32-33 regarding 10 MHz reference).

In an alternative way, since using a received GPS signal to produce a reference clock signal to ensure that base stations are synchronized in operation is well known in

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the art, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate **Dwyer's** teaching to **Csapo**, for utilizing a GPS timing signal as claimed, to improve the stability of the oscillators, thereby providing a stabilized oscillator signal that does not drift. Note that the "continuously" limitation is clearly disclosed by **Dwyer** (see col. 11, lines 38-39).

Regarding claims **15-17, 22, 29, 31, 45-48, 50, 56**, it is clear that **Csapo** as modified would disclose block converter, 10 MHz GPS timing source, external receiver (GPS receiver), amplifier, filter, optic transmitter and optic receiver (when using a fiber-optic cable for transmission) as claimed for the same reason as set forth in claim 14 above. Also note that the filter in **Csapo's** reference would obviously filter at least one member of a group comprising emissions and another communication (interferences) as claimed, for improving signal reception quality.

Regarding claim **19**, the claim is rejected for the same reason as set forth in claim 14 above. In addition, **Csapo** would disclose an "inserter" as claimed (see col. 9, lines 43-45). Further, since AC or DC power is used for operating the system (see col. 9, lines 5-7), it is clear that a transformer would be needed to transform power from a first level to a second level as claimed (i.e, 110 or 220 or 48V), in order to provide a suitable power supply to the system.

Regarding claim **21**, the claim is rejected for the same reason as set forth in claim 20 above. In addition, it is clear that a power distributor would be needed in order to supply power to each component of the system (see **Csapo**, col. 8, lines 1-11 and col. 9, lines 5-7).

Regarding claim **23**, the claim is rejected for the same reason as set forth in claim 14 above. In addition, since the use of a suppressor is well known in the art (Official Notice), for suppressing interferences, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify **Csapo** to further provide a suppressor to suppress interferences as claimed, for improving signal reception quality.

3. Claims **33-34** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Csapo** in view of **Dwyer, Stilp** and **Bickley**, and further in view of **Komara** (US Pat No. **6,161,024**).

Regarding claim **33**, the claim is rejected for the same reason as set forth in claim 14 above. In addition, since the use of redundant components in a communication system is well known in the art for backup failure components as disclosed by **Komara** (see Fig. 1 and col. 2, lines 15-40), it would have been obvious to one skilled in the art at the time the invention was made to incorporating **Komara**'s teaching to **Csapo**, to comprise such redundant components as recited in the claims, for providing a back up system to minimize disruptions of the communication system.

Regarding claim **34**, the claim is rejected for the same reason as set forth in claim 14 above. In addition, it is clear that a redundant system would obviously comprise a selector for the redundant optic transceiver as claimed, in order to select only the current active optical signal for processing.

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4. Claims **30, 32, 55** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Csapo** in view of **Dwyer, Stilp, Bickley** as applied to claim 14 above, and further in view of **Quayle et al** (US Pat No. **6,865,169**).

Regarding claims **30, 32, 55**, the claims are rejected for the same reason as set forth in claim 14 above. However, **Csapo** as modified fails to disclose a MMDS signal. However, **Quayle** discloses a base station which operates in MMDS bands (see col. 3, lines 10-31). Since **Csapo** suggests that the system can support a variety of protocols (see col. 7, lines 16-22); it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify **Csapo** to support MMDS system as disclosed in **Quayle's** reference as well, for utilizing advantages of MMDS bandwidth such as providing high speed Internet access to subscribers.

Response to Arguments

5. Applicant's arguments filed 10/10/06 have been fully considered but they are not persuasive.

In the response filed on 10/10/06, pages 8-9, Applicant contend that

"In part, amended independent system claim 14 includes "a transmission medium extending between the upper portion and the lower portion [of the tower] and configured to carry power and the stable timing signal from the lower portion to the upper portion " (Emphasis supplied.) Also, included in claim 14 is "an inserter located at the lower portion and configured to insert the power and the stable timing signal onto the transmission medium " Claim 45 incorporates similar provisions.

In reference to former claims 18, 20 and 49, the Office action alleges that "Csapo would disclose an 'inserter' as claimed (see col. 9, lines 30-45)." (Page 7 of the Office action.) The Assignee respectfully disagrees in light of the amendments to claims 14 and 45. Therein, an inserter located at the

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lower portion of the tower inserts power and the stable timing signal onto a single transmission medium, which carries the power and the stable timing signal to the upper portion of the tower. In one embodiment, the transmission medium is a coaxial cable. (Page 14, line 23, to page 15, line 7.) Oppositely, Csapo does not teach or suggest an inserter or a transmission medium carrying both power and a stable timing signal. More specifically, Csapo indicates that "power...is sent to the tower top with a separate return. This provides less power loss in the power wires, making the system more efficient." (Column 9, lines 58-61.) Thus, Csapo does not teach or suggest, and in fact teaches away from, the subject matter of claims 14 and 45. Therefore, the Assignee contends that claims 14 and 45 are allowable in view of Csapo and the remaining references cited in the Office action, and such indication is respectfully requested."

In response, the examiner asserts that Csapo does teach or suggest an inserter or a transmission medium carrying both power and a stable timing signal (see col. 9, lines 30-45, particularly to lines 43-45, wherein Csapo suggests a single polymer jacket and a single multi-wire/coaxial connector (emphasis added) for carrying power and timing signal, see col. 9, lines 30-32). Here, the "single multi-wire/coaxial connector" would read on the claimed "inserter", and the "single polymer jacket" would read on the claimed "transmission medium".

As to Applicant's argument that Csapo teaches away from the subject matter of claims 14 and 45 because Csapo indicates that "power...is sent to the tower top with a separate return. This provides less power loss in the power wires, making the system more efficient." (Column 9, lines 58-61). In response, the examiner notes that the paragraph as recited by the Applicant is just another embodiment of Csapo's teaching, it is suggested for when the PRU is placed in excess of 150 feet away from the PMU in order to provide less power loss in the power wires (see col. 9, lines 50-60).

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Therefore, Csapo does not teaches away from, the subject matter of claims 14 and 45. In fact, Csapo does teach or suggest the claimed "inserter" or a transmission medium carrying both power and a stable timing signal (see col. 9, lines 43-45 and lines 30-32).

For foregoing reasons, the examiner believes that the pending claims which rely on the patentability of an inserter or a transmission medium carrying both power and a stable timing signal are not allowable over the cited prior art.

Information Disclosure Statement

6. The references listed in the information disclosure statements submitted on 10/12/06 has been considered by the examiner (see attached PTO-1449).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. **Any response to this final action should be mailed to:**

Box A.F.

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(571) 273-8300 (for formal communications intended for entry)

(571)-273-7893 (for informal or draft communications).

Hand-delivered responses should be brought to Customer Service Window,
Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

Any inquiry concerning this communication or communications from the examiner
should be directed to Duc M. Nguyen whose telephone number is (571) 272-7893,
Monday-Thursday (9:00 AM - 5:00 PM).

Or to Matthew Anderson (Supervisor) whose telephone number is (571) 272-
4177.

Duc M. Nguyen

Dec 16, 2006

